STONE, TUBERCULOSIS OF THE KIDNEY AND PERINEPHRIC ABSCESS.*

BY GEORGE TULLY VAUGHAN, M.D.,
OF WASHINGTON, D. C.,
Professor of Surgery in Georgetown University.

STONE may exist in the kidney or ureter without infection and infection may exist without stone, but both are often found together. The causes of stone are heredity, loss of balance between ingestion and assimilation, and sudden chilling of the body, leading to deposit of the urinary salts which are held together by the colloid material provided by the products of inflammation,—pus, blood, or mucus.

The *symptoms* of stone in the kidney are due to infection or the mechanical action of the stone, the most reliable being pain, renal colic, blood, pus, or gravel in the urine, and oliguria or suppression of urine.

Pain, aggravated by motion, is felt in the lumbar region and may extend along the ureter to the bladder, penis, testicle, thigh, foot, or may be referred to the sound kidney. Palpation or percussion over the kidney may cause pain. Renal colic may end in the stone passing into the bladder, dropping back into the kidney, or becoming impacted in the ureter—the point of impaction being indicated at times by pain and tenderness. Statistics indicate that the most common sites of impaction are, in order of frequency, the juxtavesical, the juxtapelvic, and the portion just above the brim of the pelvis. The cystoscope and Röntgen ray are of great value in making the diagnosis.

Phloridzin and cryoscopy may be used to test the functional activity of the kidneys. Casper injects .01 gram of phloridzin under the skin. This produces diabetes, lasting about 3 hours, and if one kidney is disabled by stone, tuberculosis, or other cause, the urine from that kidney contains a smaller quantity of sugar than urine from the other or healthy kidney. Also, cryoscopy shows that the urine from the disabled kidney contains less solid matter and therefore freezes at a higher temperature (less degree of cold) than the urine from the healthy kidney.

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Tuberculosis of the kidney is in the majority of cases secondary to tuberculous foci in other parts of the body, it is primary in about 15 per cent. of cases, it is often unilateral and is usually of hæmatogenous origin. Rarely it is secondary to tuberculosis of the bladder. Trauma, stone, gonorrhœa, and other inflammations predispose to it. The disease is more common in women between the ages of 20 to 45 and the ureter is affected in 10 to 15 per cent. of cases.

Urinary Symptoms.—Polyuria in the earliest stage, then blood and pus, are found in the urine—the former usually in small quantity and intermittent, the latter usually early, constant, and abundant.

Vesical Symptoms.—Painful and frequent micturition with tenesmus, varying in degree and frequency. Injection of the bladder or ulcers may be seen by the cystoscope.

Renal Symptoms.—Usually pain and tenderness in the kidney and enlargement on palpation.

General Symptoms.—These are chills, fever, sweats, emaciation, vomiting and uræmia.

Perinephric abscess is the result of infection of the tissues immediately surrounding the kidney and is generally secondary to infection of the kidney or some more distant organ, as the appendix, gall-bladder, lung, pleura, intestines or bones.

The symptoms are often obscured by those of the primary disease, but the most common are pain, tenderness, chill, fever, sweats and a palpable mass in the region of the kidney. The pus may break into other organs or point externally in Petit's triangle.

Treatment.—Stone in the kidney should be removed at once (the best time is before infection occurs); impacted stone in the ureter, as soon as it is evident that it will not pass. A calculous kidney should not be removed as long as there is any chance of saving it, even if repeated operations are necessary.

Tuberculosis limited to one kidney should be treated by nephrectomy. If both are affected, nephrostomy and drainage are advisable. The best incision for nephrectomy or nephrostomy is the Morris or oblique incision just below the last rib.

ILLUSTRATIVE CASES.

CASE I.—*Patent urachus; stones in both kidneys—requiring four operations.*

This patient was operated on as follows: First operation, June, 1904, patent urachus excised; second operation, August, 1904, stone removed from right kidney; third operation, May, 1905, two stones removed from left kidney; fourth operation, December, 1906, coral stone removed from left kidney.

The patient now (April, 1908) seems to be in perfect health.

CASE II.—*Enormous stone in the juxtavesical, and a small stone in the vesical, portion of the right ureter; large perinephric abscess draining into ureter.*

The patient, a woman 33 years old, had suffered from renal colic on the right side which soon subsided into a constant pain with exacerbations at intervals. Other symptoms were chills, fever, frequent micturition, hæmaturia, pyuria, and tenderness over the right kidney and right iliac region. By vaginal examination a hard mass about as large as a hen's egg could be felt anterior and to the right of the uterine cervix. It was diagnosed as a stone in the ureter and was removed by incision through the vagina and ureter. The stone was whitish in color, irregularly spindle-shaped, measured 7 cm. (2¾ in.) in length, 11½ cm. (4½ in.) in circumference, and weighed 61 grams (915 grains)—the largest stone I have ever heard of having been found in the ureter.

Three weeks later a large perinephric abscess was opened. It was situated above and behind the kidney, which it had displaced downward. The abscess communicated with the ureter but did not communicate with the kidney so far as could be ascertained by careful examination of the kidney within and without.

CASE III.—*Pyelonephritis of left kidney and pyelitis of the right—probably of gonorrhœal origin; nephrectomy of left and drainage of right kidney.*

A man, 26 years old, had pain, vesical tenderness, frequent micturition and pyuria ever since an attack of gonorrhœa 4 years previous. The symptoms pointed to the left side chiefly. The left kidney was exposed, found to be a pus sac and was removed with the ureter as far as the brim of the pelvis, the end of the ureter being stitched to the skin in inguinal region. Improvement followed, but 18 months later nephrostomy and drainage of the remaining kidney was done for six weeks. Great improvement followed and the patient regained his normal weight and returned to work after 2 years in hospital, but there is still pyuria.